



IN REPLY REFER TO:

# United States Department of the Interior

NATIONAL PARK SERVICE

Air Resources Division

P.O. Box 25287

Denver, CO 80225



N3615 (2350)

March 29, 2012

Pamela Blakley, Chief  
Control Strategies Section  
Air Programs Branch (AR-18J)  
U.S. Environmental Protection Agency Region 5  
77 West Jackson Boulevard  
Chicago, Illinois 60604

EPA Docket ID: EPA-R05-OAR-2012-0059

Dear Ms. Blakley:

The National Park Service (NPS) has reviewed the Environmental Protection Agency's (EPA's) proposed "Approval and Promulgation of Air Quality Implementation Plans; Wisconsin; Regional Haze." We are concerned that in its proposal to approve Wisconsin's Plan, EPA has not fully addressed the concerns that we raised in our March 2011 comments on Wisconsin's proposed determination of Best Available Retrofit Technology (BART) for Georgia Pacific. Emissions from Georgia Pacific impact visibility at Isle Royale and Voyageurs National Parks. EPA's proposed approval of the Georgia Pacific BART determination is not consistent with EPA's comments in a September 2011 letter to Wisconsin concerning the Georgia Pacific BART proposal. Our concerns are summarized below and detailed in the enclosed document.

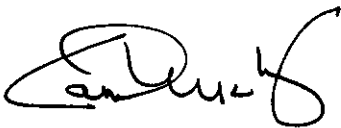
Emissions from the two Georgia Pacific boilers that are subject to BART (B26 and B27) and three non-BART boilers (B24, B25 and B28) are vented to a common stack. Georgia Pacific proposed that emissions limits be set for the combined BART and non-BART boilers. Boiler B24 ceased operation in 2004 and boiler B25 ceased operation in 2008. WDNR and EPA propose to allow the combined baseline emissions to include emissions from boiler B25 that has not operated for three years, as well as boilers B26, B27, and B28. However, in its September 2011 letter to WDNR, EPA commented that including emissions from the non-operational boiler B25 in the combined emissions limit would allow less effective controls of the BART boilers. We recommend that emissions from boiler B25 not be included in the baseline emissions and that the combined emissions limits be based on BART controls for boilers B26 and B27 and additional controls for boiler B28 under the reasonable progress provisions of the regional haze rule.

Controls on boiler B28 are warranted for reasonable progress because the northern Class I areas impacted by Wisconsin's emissions are not meeting or just meeting the uniform rate of progress for visibility improvement. The BART and reasonable progress levels of control should be 95% for sulfur dioxide (SO<sub>2</sub>) and 75-85% for nitrogen dioxide (NO<sub>x</sub>).

We disagree with Wisconsin's and EPA's proposal to approve four different combinations of SO<sub>2</sub> and NO<sub>x</sub> emissions limits as BART for the combined stack and to allow Georgia Pacific to select by July 2013 which emissions limits to meet. We are not aware of any other situation in the country where EPA proposes to allow a source to meet one of multiple emissions limits. EPA acknowledges in its proposal Wisconsin had not established fully enforceable permit conditions for Georgia Pacific and that Wisconsin must do so prior to final approval of the Wisconsin Plan. In the approved Plan, the more stringent limits each for SO<sub>2</sub> and for NO<sub>x</sub> should be determined to be BART and less stringent alternative emissions limits should not be permitted.

We appreciate the opportunity to work closely with Wisconsin and EPA Region 5 to make progress toward achieving natural visibility conditions at the National Parks and Wilderness Areas. For further information regarding our comments, please contact Pat Brewer at (303) 969-2153.

Sincerely,



Carol McCoy  
Chief, Air Resources Division

Enclosure

cc:  
Bart Sponseller  
Bureau of Air Management  
Wisconsin Department of Natural Resources  
101 South Webster Street  
Madison, Wisconsin 53707-7921

**National Park Service Comments**  
**Wisconsin Revised Draft Regional Haze State Implementation Plan**  
**March 29, 2012**

**BART for EGU Sources**

Wisconsin Department of Natural Resources (WDNR) and EPA are proposing that the existing Particulate Matter (PM) control equipment (electrostatic precipitator or baghouse) and permit limitations are satisfactory for BART. However, as noted in our March 6, 2011 comments to WDNR, the analysis used by WDNR modeled current actual emissions instead of the proposed permit limits, which, in some cases, are more than an order of magnitude greater than the emissions modeled.

Facility	Boiler	Table 5 PM Emission Limit (lb/mmBtu)	Tables C2 & C4 PM Emissions Modeled (lb/mmBtu)	Ratio of Permit Limit vs Modeled Emissions
Alliant Energy – Columbia 1	B-21	0.025	0.097	0.3
Alliant Energy – Columbia 2	B-22	0.020	0.030	0.7
Alliant Energy – Edgewater	B-24	0.130	0.041	3.2
Alliant Energy – Nelson Dewey	B-22	0.100	0.031	3.2
Wisconsin Energy – Oak Creek	B-27	0.030	0.007	4.3
Wisconsin Energy – Oak Creek	B-28	0.030	0.015	2.0
Wisconsin Energy – Pleasant Prairie	B-20	0.100	0.001	100.0
Wisconsin Energy – Pleasant Prairie	B-21	0.100	0.006	16.7
Wisconsin Public Service Corporation– JP Pulliam Plant	B-27	0.300	0.033	9.1
Wisconsin Energy – Valley	B-21	0.150	0.011	13.6
Wisconsin Energy – Valley	B-22	0.150	0.059	2.5
Wisconsin Energy – Valley	B-23	0.150	0.025	6.0
Wisconsin Energy – Valley	B-24	0.150	0.025	6.0

The WDNR modeling exercise only demonstrates that elimination of the modeled emissions would have no significant visibility benefit. Instead, WDNR must show that the proposed BART limits for PM<sub>10</sub> have no significant impact on visibility in order to successfully demonstrate that a full five-factor BART analysis is unnecessary. Or, WDNR could propose BART limits that reflect the true capabilities of the existing control technologies.

**BART Determination for Georgia Pacific**

WDNR determined that Georgia Pacific in Green Bay is the only industrial source subject to BART in Wisconsin. GP Consumer Products LP Green Bay Broadway Mill, a wholly-owned

subsidiary of Georgia- Pacific LLC (GP), operates a recycle pulp (de-inking process) and paper mill. The Green Bay Broadway Mill is located in the city limits of Green Bay, Wisconsin, in Brown County. Primary operations at the facility include steam and electrical generation, fiber recovery and bleaching, paper making, and converting. The Green Bay Broadway Mill purchases or obtains all of the pulp and recycled paper used at the facility since the Mill does not have the capability to produce pulp directly from virgin wood fiber.

**CALPUFF modeling results for BART-eligible non-EGU sources in Wisconsin.**

The results show the number of days that the visibility impairment caused by the analyzed source exceeded 0.5 deciviews in each modeling year 2002, 2003, and 2004.

Class I areas -->	Boundary Waters	Isle Royale	Seney	Voyageurs
modeling years -->	02 03 04 Tot	02 03 04 Tot	02 03 04 Tot	02 03 04 Tot
Georgia-Pac. - Green Bay	7 8 13 28	14 21 19 54	42 58 48 148	2 0 3 5

**GP BART Sources**

In 2004, the facility operated five boilers identified as B24, B25, B26, B27, and B28. Two of these boilers, B26 and B27, began operation between 1962 and 1977 and are subject to the BART requirement; the other boilers are not. Wisconsin determined that emissions of both SO<sub>2</sub> and NO<sub>x</sub> from both B26 and B27 were significant and warranted evaluation for control.

Boiler B26 is a spreader-stoker-fired unit manufactured by Babcock and Wilcox installed in 1962. It is a two-drum, balanced-draft furnace, with a maximum rated heat input capacity of 350 mmBtu/hr. B26 burns washed coal (eastern high and low fusion and western coals) and petroleum coke. B26 provides steam for process heating and for the production of electrical energy using turbine generators. The boiler is designed for steam production at a maximum continuous rating (MCR) of 275,000 lbs/hr at 850 psig and 890 °F. The boiler exhaust gases pass through an air heater and then are discharged via the boiler’s induced draft fan into a common duct connected with the flue gas discharge streams of several other boilers at the mill. The common duct is equipped with a baghouse to remove particulate matter emissions from the exhaust gases.

Boiler B27 is a two-drum cyclone-type boiler manufactured by Babcock and Wilcox and installed in 1969. The boiler has a heat input rating of 615 mmBtu/hr with a MCR steam flow of 500,000 lbs/hr and an ultimate maximum steam flow of 550,000 lb/hr for a one– hour period over 24 hours of operation. The boiler’s steam superheater outlet condition is 850 psig at 890 °F. Boiler B27 is permitted to burn coal, petroleum coke, natural gas, and #2 fuel oil. Natural gas is normally used for startup and maintaining stability. Boiler B27 typically operates in a swing-loaded mode and fires low fusion eastern coal with up to 25% petroleum coke. The Boiler’s exhaust gases are discharged into a common duct connected with the flue gas discharge streams from several other boilers at the mill. The common duct is equipped with a baghouse to remove particulate matter emissions from the exhaust gases.

The exhaust gases from Georgia-Pacific’s boilers are combined before entering a pair of baghouses, after which the exhaust gases are recombined and vented out a single stack (S10). Consequently, the company requested that Wisconsin develop limits governing the combined emissions of all operating boilers. Wisconsin determined these limits by first finding the sum of

the controlled emissions for B26 and B27 plus the baseline, uncontrolled emissions for B25 and B28. In calculating these limits, emissions were not allocated for Boiler B24, because this boiler has been shut down for the last several years. The final limits were determined by then subtracting 10 percent of the remaining emissions of B26 and B27, providing an environmental benefit as called for in the Economic Incentive Program guidance<sup>1</sup> for cases such as this, where emissions of multiple units may, in effect, be traded.

WDNR proposed the following emission limits for GP based upon the proposal by GP to trade emissions among boilers that are subject to BART (B26 & B27) and boilers not subject to BART (B25 & B28):

Table 7B – Summary of SO<sub>2</sub> and NO<sub>x</sub> BART Compliance Requirements

Pollutant	Tons Emitted in any 30 Day Period at Stack S10	Tons Emitted in any 12 Month Period at Stack S10
SO <sub>2</sub>	268	2,340
NO <sub>x</sub>	110	977
PM	0.30 lbs/mmBtu	

### Sulfur Dioxide (SO<sub>2</sub>) BART

**Baseline SO<sub>2</sub> Emissions:** The table below was prepared by WDNR and includes data for the five power boilers that exhaust through the common stack S10. Boilers B24 & B25 are not BART-eligible and have not operated recently. Boiler B28 is not BART-eligible and has continued to operate. We believe that, due to the obviously changing boiler utilization at the mill, the 2009 – 2010 data is most representative of current baseline conditions. (It is EPA’s policy to presume that, if an emission unit is shut down for more than two years, it has ceased operation and would require permitting action to restart. Because B25 has been shut down for more than two years, we presume that it is no longer part of the mill’s baseline operations, and its emissions cannot be counted in the baseline.) Thus, current baseline conditions for the BART boilers B26 & B27 would be the 2009 – 2010 averages of 6,366,326 mmBtu/yr, 11,774 tons per year (tpy) and 3.70 lb/mmBtu. Likewise, current baseline conditions for the non-BART boiler B28 would be the 2009 – 2010 averages of 1,182,737 mmBtu/yr, 573 tpy and 0.97 lb/mmBtu. Total current baseline conditions for the operating power boilers B26, B27, and B28 would be the 2009 – 2010 average of 7,549,063 mmBtu/yr, 12,347 tpy and 3.27 lb/mmBtu.

<sup>1</sup> “Draft Economic Incentive Policy Guidance,” Office of Air and Radiation, September 1999, available at <http://www.epa.gov/ttn/oarpg/t1/memoranda/eip9-2.pdf>

Boilers	2002	2003	2004	2005	2006	2007	2008	2009	2010
<i>Heat Input (mmBtu)</i>									
B24	674,360	266,036	290,242	0	0	0	0	0	0
B25	919,157	353,158	394,503	624,211	592,310	430,376	249,893	0	0
B26	1,732,160	1,917,674	1,998,835	2,066,278	2,064,539	1,934,039	1,852,594	1,914,566	1,982,008
B27	4,550,267	4,298,870	4,251,026	4,191,365	4,451,426	4,438,621	4,481,955	4,340,240	4,495,838
<u>B28</u>	<u>1,778,981</u>	<u>1,493,510</u>	<u>1,418,861</u>	<u>1,157,401</u>	<u>1,278,627</u>	<u>1,128,183</u>	<u>843,527</u>	<u>1,213,090</u>	<u>1,152,385</u>
Non-BART	3,372,498	2,112,704	2,103,606	1,781,612	1,870,937	1,558,558	1,093,420	1,213,090	1,152,385
BART	6,282,427	6,216,544	6,249,861	6,257,643	6,515,965	6,372,660	6,334,550	6,254,805	6,477,846
Total	9,654,925	8,329,248	8,353,467	8,039,255	8,386,902	7,931,218	7,427,970	7,467,895	7,630,231
<i>Emissions (tpy)</i>									
B24	429	180	166	0	0	0	0	0	0
B25	588	246	213	331	318	210	120	0	0
B26	1926	2413	2141	2,240	2,330	2,295	2,151	2,173	2,241
B27	8807	8810	8527	8,339	9,278	9,636	9,751	9,525	9,610
<u>B28</u>	<u>1664</u>	<u>1656</u>	<u>942</u>	<u>496</u>	<u>585</u>	<u>563</u>	<u>407</u>	<u>577</u>	<u>570</u>
Non-BART	2,681	2,082	1,321	827	903	772	527	577	570
BART	10,733	11,223	10,668	10,579	11,608	11,931	11,902	11,698	11,850
Total	13,414	13,305	11,989	11,406	12,511	12,703	12,429	12,275	12,420
<i>Emissions (lb/mmBtu)</i>									
B24	1.27	1.35	1.14	---	---	---	---	---	0
B25	1.28	1.39	1.08	1.06	1.07	0.97	0.96	---	0
B26	2.22	2.52	2.14	2.17	2.26	2.37	2.32	2.27	2.26
B27	3.87	4.10	4.01	3.98	4.17	4.34	4.35	4.39	4.27
<u>B28</u>	<u>1.87</u>	<u>2.22</u>	<u>1.33</u>	<u>0.86</u>	<u>0.92</u>	<u>1.00</u>	<u>0.96</u>	<u>0.95</u>	<u>0.99</u>
Non-BART	1.59	1.97	1.26	0.93	0.97	0.99	0.96	0.95	0.99
BART	3.42	3.61	3.41	3.38	3.56	3.74	3.76	3.74	3.66
Total	2.78	3.19	2.87	2.84	2.98	3.20	3.35	3.29	3.26

**Evaluate Control Effectiveness of Remaining SO<sub>2</sub> Control Technologies:** We commend WDNR for the breadth of its review of potential control technologies for SO<sub>2</sub>, but we remain concerned about how the effectiveness of some of those technologies was estimated.

WDNR improperly lumped all dry-scrubbing technologies together in its proposal of 93% efficiency for SO<sub>2</sub> controls. Instead, WDNR should have focused upon the specific control technology, Turbosorp, that it evaluated for GP. Had it done so, the data cited by WDNR for the two facilities and SO<sub>2</sub> concentrations most similar to GP, Greenridge and Deerhaven, clearly show that the Turbosorp scrubber can achieve 0.11 – 0.13 lb SO<sub>2</sub>/mmBtu,<sup>2</sup> which, in these cases, is equivalent to 95% - 97% control. This should be the basis for a SO<sub>2</sub> control effectiveness estimate at GP. Instead, WDNR is proposing an SO<sub>2</sub> limit that is equivalent to 0.23 – 0.27 lb/mmBtu.<sup>3</sup> WDNR cites “operating variability” as its reason for downgrading the effectiveness

<sup>2</sup> Because SO<sub>2</sub> control efficiency is heavily influenced by inlet SO<sub>2</sub> concentration, in controlling SO<sub>2</sub>, the control efficiency is less important than the ultimate outlet SO<sub>2</sub> concentration, as this is primarily a function of chemical equilibrium conditions and the mass transfer capability of the scrubber.

<sup>3</sup> Table 2.1 of the WDNR GP BART analysis document.

of the scrubber, but its own data show that such “operating variability” was already taken into account in its evaluation of the Greenridge Turbosorp scrubber. Not only has WDNR double-counted this “operating variability” at GP, it has also exaggerated it compared to Greenridge. In its September 2011 comments<sup>4</sup> to WDNR, EPA expressed similar concerns:

The draft amended BART determination for Georgia-Pacific indicates that BART has been defined for similar facilities as 95 percent control for sulfur dioxide (SO<sub>2</sub>), but then BART is redefined as 2 percent lower based on data suggesting a 1.5 percent variability in SO<sub>2</sub> control at another facility across a slightly wider range in operation rate than is common at Georgia-Pacific. The 95 percent control level, as used elsewhere to define BART, already includes a compliance margin that takes account of control variability. For example, the AES Greenridge facility in North Carolina, found to be similar to the Georgia-Pacific facility, has been found to achieve reductions of about 95.3 percent to 96.8 percent, so that a limit requiring 95 percent control would provide a compliance margin even relative to the minimum control efficiency. Therefore, reducing the BART definition a further 2 percent effectively double counts an adjustment for control variability.

Furthermore, while Wisconsin argues based on the North Carolina data that a 2 percent reduction in the mandated control efficiency is warranted to accommodate lesser control efficiency at lower loads, the State then uses the reduced control level in contexts where the reduced control level does not apply. First, Wisconsin uses the reduced control level to calculate a revised total mass limit that by nature is more of a constraint on and more germane to higher load operation. Second, as discussed in comment 4 below, any 30-day average limit should require average and not minimum control efficiency. For these reasons, the definition of BART should reflect at least a 95 percent rather than a 93 percent SO<sub>2</sub> control level.

EPA should explain why it has now concluded that 93% control efficiency is appropriate.

**Sulfur Dioxide (SO<sub>2</sub>) BART Determination:** We agree with EPA’s September 2011 conclusion that “BART should reflect at least a 95 percent rather than a 93 percent SO<sub>2</sub> control level.” A 95% reduction from the 2009 – 2010 BART emissions would be 11,185 tpy resulting in remaining emissions of 0.18 lb/mmBtu and 518 tpy. The combined emissions from the BART and non-BART boilers would then be 1,162 tpy at 0.31 lb/mmBtu.

In its September 2011 comments, EPA notes:

Since the BART guidelines do not address trades that involve sources not subject to BART, issues like this must be addressed in accordance with EPA’s economic incentive program (EIP) policy, particularly the guidance on emissions averaging and on single source caps. This guidance is available at <http://www.epa.gov/ttncaaa1/t1/memoranda/eipfin.pdf>.

Thus, if Wisconsin wishes to include all of the boilers either in an average rate limit or a collective mass cap, the limit must set to provide an environmental benefit relative to a scenario in which the two BART boilers are operating BART controls and the two boilers that are currently shutdown have zero emissions. EPA recommends providing environmental benefit by limiting emissions to 10 percent below the level that would be required with unit-by-unit limits.

Applying the 10% “environmental benefit” factor to the cap described above yields a BART limit of 1,046 tpy at 0.28 lb/mmBtu. (However, as discussed later and below, we believe that the Reasonable Progress requirements of the Regional Haze Rule lead to lower limits.)

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<sup>4</sup> EPA Region 5 Letter to Wisconsin dated September 16, 2011 commenting on Draft Wisconsin Regional Haze Plan dated July 1, 2011

### **Reasonable Progress (RP) for GP SO<sub>2</sub> emissions**

WDNR has not proposed any emission reductions at GP under the Reasonable Progress (RP) requirements of the Regional Haze Rule. Instead, we believe that WDNR should take an approach similar to that proposed by EPA and VA regarding SO<sub>2</sub> emissions from the power boilers at the Mead/Westvaco paper mill in Covington, VA. In that case, as with GP, there were multiple power boilers exhausting through a common stack; one boiler was subject to BART, the others were not. To fulfill the Reasonable Progress commitment, VA and EPA proposed additional (beyond BART) SO<sub>2</sub> scrubbing of all of the boilers on that common stack. A similar approach at GP would apply the same (95%) level of scrubbing to all the operating power boilers (B26, B27, and B28) and reduce common stack emissions to 617 tpy at 0.16 lb/mmBtu.

We believe that EPA has erred in accepting the WDNR assumptions for higher power boiler baseline emissions that include the shut-down boiler B25 and 93% BART-level control efficiency. GP should not be allowed to hypothetically resurrect boiler B25 purely to inflate its emission limits, and EPA should stand by its September 2011 comments to WDNR that BART is a 95% SO<sub>2</sub> reduction (plus another 10% EIP reduction). EPA has provided no rationale for its reversal on this issue.

### **Nitrogen Oxide (NO<sub>x</sub>) BART Determination**

In the amended NO<sub>x</sub> BART, WDNR maintains Regenerative Selective Catalytic Reduction (RSCR) for boiler B27 at 70% control efficiency. With the combustion modifications and RSCR, WDNR proposes that the NO<sub>x</sub> BART compliance control efficiency for boiler B27 is 85% reduction. We agree with this approach.

For boiler B26, WDNR has determined that RSCR control is not applicable under BART and amended the NO<sub>x</sub> BART to 68% control based on combustion modifications and Selective Non-Catalytic Reduction (SNCR).

BART is not necessarily the most cost-effective solution. (If that were the case, only low-sulfur coal, combustion controls, and multicyclones would ever be required for large boilers.) WDNR has stated that all of the NO<sub>x</sub> control technologies presented in its Table 4.4 are cost-effective, and yet it has chosen the third-ranked technology, Over-Fire Air/Flue Gas Recirculation/SNCR (OFA/FGR/SNCR) at 68% control efficiency, as BART. In rejecting RSCR, WDNR cites an “energy penalty” and increased CO<sub>2</sub> emissions. However, the “energy penalty” is already accounted for in the cost analysis and is a legitimate concern only if there is a scarcity of available energy to operate the system—which no one has suggested.

WDNR has created a “straw-man” situation by:

- assuming operation of boiler B25
- assuming that each boiler would be controlled separately
- proposing a SO<sub>2</sub> BART limit that is too high
- deciding that control of emissions from non-BART boilers must be avoided, even if that approach hampers control of BART boilers

WDNR contends that application of RSCR technology is complicated by the equipment configuration. **Currently, flue gas from all boilers B24 through B28 exhausts to a common**



**duct** which then enters the existing fabric filter system. Just prior to the fabric filter system, the duct splits with flue gas traveling evenly to two parallel fabric filter units. The flue gas then exits each fabric filter unit in separate ducts and rejoins only after entering the stack structure.

Babcock Power, the primary vendor of the RSCR system, provided a quote to Georgia Pacific for two separate RSCR trains, each treating an individual flue gas stream exiting the fabric filters. On this basis, WDNR attributed the installation of one RSCR to control boiler B27 emissions (duct 1) and the second RSCR (duct 2) for treating boiler B26 emissions. We see no reason to believe that the gases exhausted from each of these boilers would remain separated as they first pass through the common duct from the boilers. Instead, it is likely that the combined boiler exhausts would produce an average blend instead of maintaining their separate characteristics as WDNR implies.

WDNR raises a concern that SO<sub>2</sub> BART for Georgia Pacific at a default flue gas concentration of 1.0 lbs/mmBtu will generate a visible plume and that would create concern for overall technical feasibility of applying the RSCR under these conditions. According to WDNR notes from its conversation with Babcock Power, “the typical conversion of SO<sub>2</sub> to SO<sub>3</sub> over the SCR catalyst in the RSCR is well less than 1%,” which is typical of most SCR catalysts. WDNR states:

Based on discussions with Babcock Power (BP) an SO<sub>2</sub> emission rate of 1.0 lbs/mmBtu will result in SO<sub>3</sub> concentrations of approximately 5.3 parts per million (ppm) @ 3% O<sub>2</sub>. The Institute of Clean Air Companies indicates the target for avoiding plume is to keep SO<sub>3</sub> concentrations below 5 ppm. **Babcock Power indicates that plume issues need to be further evaluated if SO<sub>2</sub> concentrations to the RSCR are above 0.6 lbs/mmBtu.**

The potential for an SO<sub>3</sub> plume can be essentially eliminated by a more-stringent SO<sub>2</sub> BART determination (0.28 lb/mmBtu for the combined gas streams), as discussed above. This issue can be further mitigated by WDNR addressing SO<sub>2</sub> emissions from the non-BART boilers under its Reasonable Progress requirements (and limiting combined emissions to 0.16 lb/mmBtu).

WDNR also raises concern about the formation of ammonium bisulfates in the RSCR and downstream flue duct system that would increase maintenance and operating cost throughout the system. The potential for deposition of ammonium bisulfates can be essentially eliminated by a more-stringent SO<sub>2</sub> BART/RP determination.

Based upon WDNR estimates in its Table 4.4, and in consideration of incremental costs, we recommend that OFA/FGR/RSCR be determined to represent BART for boiler B26 because it achieves the greatest emission reduction (81%) with cost-effectiveness of \$3,675/ton and \$15.6 million/dv at the most-impacted Class I area (Seney). Based upon our review of BART determination across the nation, these cost-effectiveness values are very reasonable.

### **Visibility Impacts**

WDNR performed CALPUFF modeling to assess visibility improvement achieved under the amended BART requirements. The modeled emission cases are based on the maximum actual emissions during the baseline years for the combined stack S10. We are concerned that WDNR may not have modeled its “adjusted baseline emissions.” (Although we disagree with the adjustment process as discussed above, for internal consistency, once WDNR decided to use that approach, it should have based all of its analyses upon those adjusted emissions. Had it done so,

it is likely that baseline impacts, emission reductions, and visibility improvements would have been greater than presented by WDNR.)

WDNR presented the total maximum visibility impact that represents the sum of the maximum modeled impacts for each of the four northern Class I areas. We commend WDNR for considering cumulative visibility impacts and benefits. WDNR estimated that its BART proposal would reduce the three-year average 98<sup>th</sup> percentile impact at Seney from 4.14 dv down to 2.12 dv, while the cumulative impacts at the four Northern Class I areas would drop from 8.12 dv to 3.93 dv.

### **Particulate Matter (PM) BART Determination**

WDNR is proposing a limit on Particulate Matter (PM) emissions that is more than an order of magnitude greater than the actual emission modeled.<sup>5</sup> WDNR determined that the existing PM controls and permit limitations constitute BART PM requirements for boilers B26 and B27. However, the WDNR modeling exercise only demonstrates that elimination of the modeled emissions would have no significant visibility benefit. Instead, WDNR must show that the proposed 0.30 lb/mmBtu BART limit for PM<sub>10</sub> has no significant impact on visibility in order to successfully demonstrate that a full five-factor BART analysis is unnecessary. Or, WDNR could propose BART limits that reflect the true capabilities (0.025 lb/mmBtu) of the existing control technologies.

### **BART emission limitations**

In its Federal Register (FR) Notice<sup>6</sup>, EPA has determined that emissions limits of 2,340 tpy of SO<sub>2</sub> and 977 tpy of NO<sub>x</sub> are **Best Available Retrofit Technology** for common stack S10. EPA then goes on to propose that an SO<sub>2</sub> limit as low as 1,250 tpy and a NO<sub>x</sub> limit as high as 1,522 tpy are also **Best Available Retrofit Technology** for common stack S10. However, neither WDNR nor EPA explains how those lower limits for SO<sub>2</sub> would be achieved, nor do they explain why those lower limits are not, in and of themselves, BART. We note that EPA defines Best Available Retrofit Technology thus:

*Best Available Retrofit Technology (BART)* means an emission limitation based on the degree of reduction achievable through the application of the **best system of continuous emission reduction for each pollutant** which is emitted by an existing stationary facility. The emission limitation must be established, on a case-by-case basis, taking into consideration the technology available, the costs of compliance, the energy and nonair quality environmental impacts of compliance, any pollution control equipment in use or in existence at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology. [emphasis added]

We believe that the WDNR and EPA proposal contravenes the BART requirement for the “**best system of continuous emission reduction for each pollutant.**” If EPA believes that 1,250 tpy is BART for SO<sub>2</sub> then it should not allow GP to emit 2,340 tpy under any circumstance. Likewise, if EPA believes that 977 tpy is BART for NO<sub>x</sub>, then it should not allow GP to emit 1,522 tpy under any circumstance. Once the BART boundary limits are established, then any BART alternative must produce lower emissions by obtaining emission reductions that are better-than-BART.

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<sup>5</sup> PM controls are operated at a very high level achieving 0.025 lbs/mmBtu emission rates. The B&W quote for RSCR is based upon 0.02 lb/mmBtu.

<sup>6</sup> EPA-R05-OAR-2012-0059, 77 FR 11928

Emission limits must reflect the best level of “continuous emission reduction,” and the proposed mass cap limits would allow a very high lb/mmBtu emission rate during periods of low utilization. And, EPA should not allow the source to mix-and-match to find the least-stringent combination for each situation. EPA addressed these issues in its July 2011 letter to WDNR:

The draft limits are expressed in a variety of forms. Apparently Georgia-Pacific would be allowed to choose the set of limits with which to comply, and would be authorized to change its choice periodically. This authorizes the company to comply with whichever limit is least stringent, thereby making the mix of choices of limits less stringent than any one of the limits alone. Offering multiple choices of limits also may make the set of limits unenforceable. Therefore, Wisconsin must establish each limit as independently enforceable, without authorizing a choice among the limits with which to comply.

Compared to its original BART proposal, Wisconsin is now proposing extended averaging times, while relaxing the emission limits. Wisconsin has not justified the extended averaging times. If Wisconsin wishes to pursue 30-day averaging, in combination with an annual emissions cap, the State must provide justification.

EPA has not explained why it now accepts the approaches that it recently rejected.

EPA proposes to allow WDNR to take advantage of the purported Stack S10 10% emission reduction more than once. In the first case, EPA says:

The final limits were determined by then subtracting 10 percent of the remaining emissions of B26 and B27, providing an environmental benefit as called for in the economic incentive program guidance for cases such as this, where emissions of multiple units may in effect be traded.

Later, EPA says:

While the establishment of limits governing emissions from the full set of operating boilers rather than just the BART boilers creates some uncertainty as to how much the emissions from the BART boilers will be controlled, Wisconsin has arguably compensated for that uncertainty by providing an “environmental benefit” in the form of a reduction of the overall cap by an amount equal to 10 percent of the emissions of the BART boilers at BART control levels.

While it is appropriate under EPA’s Economic Incentive Program to reduce allowable emissions by “10 percent for the benefit of the environment,” it is not appropriate to use that same 10% reduction again to “arguably compensate for that uncertainty” “as to how much the emissions from the BART boilers will be controlled.”

### **Reasonable Progress Goals (RPG) and Our 2011 Comments to WDNR**

WDNR determined that RPG is met for the Boundary Waters and Voyageurs northern class I areas based on Midwest Regional Planning Organization (MRPO) visibility modeling of the “on the books” 2018 emissions inventory. However, the WDNR statement is contrary to the finding by Minnesota in its Regional Haze SIP<sup>7</sup> that, based on modeling by the Central Regional Air Partnership (CENRAP) for Boundary Waters and Voyageurs, “The RPG provides for less annual progress towards the ultimate visibility goals than the uniform rate of progress (URP).” MN goes on to estimate that natural condition will not be achieved in Boundary Water until 2093 and in Voyageurs until 2177.

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<sup>7</sup> Minnesota Regional Haze SIP, docket for EPA-R05-OAR-2012-0059, Table 10.7: Reasonable Progress Goals for Class I areas

MRPO visibility modeling projects that Isle Royale and Seney will not meet the uniform rate of progress, therefore WDNR evaluated additional sources that could impact these Class I areas.

In setting reasonable progress goals, the Regional Haze Rule requires states to consider four factors for any potentially affected sources and include a demonstration how these factors were taken into consideration in setting the goal.<sup>8</sup> This analysis is required independent of the projected visibility improvement by 2018.

In our March 10, 2011 comments we suggested to WDNR that:

WDNR has not included the required reasonable progress four factor analysis to evaluate what additional emission reductions are feasible and reasonable. WDNR needs to evaluate its emission sources and demonstrate that the State is making reasonable progress in reducing anthropogenic emissions. WDNR cites the four factor analysis prepared for MRPO by the contractor EC/R<sup>9</sup> for possible further controls on EGU, but does not cite the controls analyzed for industrial sectors by EC/R. This analysis should be completed for the major industrial source sectors represented in Wisconsin.

WDNR has tried to respond with an analysis of emissions (Q) divided by distance (d) for the top 30 sources affecting visibility in each of the Northern Class I areas. The sources with the largest values are expected to have the largest visibility impact. Since the "on the books" 2018 inventory was used in this Q/d analysis, WDNR indicated additional control levels for some of these sources and concluded that these emissions reductions will reduce the visibility impact for both Seney and Isle Royale.

It is not clear how WDNR used the data it generated in that Q/d analysis. While we commend WDNR for the emissions reductions shown in its Tables 8A and 8B, we see no criterion by which WDNR determined which sources to evaluate under the Reasonable Progress four-factor approach. For example, we note that in Table 1 of its June 24, 2010 "Best Available Retrofit Technology at Non-EGU Facilities" report, WDNR showed that several facilities<sup>10</sup> that were exempted from BART had impacts on visibility that warrant further attention. And, Georgia Pacific, the only non-EGU subject to BART also contains large emission units that, while not BART-eligible, still have considerable visibility impacts. WDNR should justify its decision to exempt all non-BART sources from a Reasonable Progress analysis, especially considering the projections that the URP glide path will not be achieved at the northern Class I areas, and that, based upon WDNR's Table 1, Wisconsin is the second-largest contributing state to visibility impairment in the northern Class I areas.

In its FR Notice<sup>6</sup>, EPA has excused WDNR from analysis of these sources by stating that:

Reasonable controls can potentially be implemented on industrial, commercial, and institutional boilers. Wisconsin did not include additional controls for these sources in this plan as additional emission reductions are not needed now, but Wisconsin committed to reevaluate options for achieving emission reductions from this category of sources if needed in future.

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<sup>8</sup> 40 CFR Part 51.308 (d)(1)(i)

<sup>9</sup> [http://www.ladco.org/reports/rpo/consultation/products/reasonable\\_progress\\_for\\_class\\_i\\_areas\\_in\\_the\\_northern\\_midwest-factor\\_analysis\\_draft\\_final\\_technical\\_memo\\_july\\_18\\_2007.pdf](http://www.ladco.org/reports/rpo/consultation/products/reasonable_progress_for_class_i_areas_in_the_northern_midwest-factor_analysis_draft_final_technical_memo_july_18_2007.pdf)

<sup>10</sup> WIS DOA/UW Madison-Charter Dt., Proctor & Gamble Paper Production Company, Thilmany paper, Packing Corporation of America-Tomahawk, Wausau Paper Corp-Mosinee, New Page – WI Rapids Pulp Mill, and Domtar A. W. Corp – Nakoosa.

We ask EPA to explain how it has determined that “additional emission reductions are not needed now.” As EPA noted in its rejection of the Arkansas Regional Haze SIP<sup>11</sup>:

The preamble to the Rule (64 FR 35732) also makes clear that the URP does not establish a “safe harbor” for the State in setting its progress goals...States do have discretion in setting RPGs, but are required to go beyond the URP analysis in establishing RPGs.

Even if WI were meeting the Uniform Rate of Progress glide path, it is still required to conduct a four-factor analysis of sources that affect visibility.

### **Meeting identified contribution and reduction obligations**

WDNR asserts that:

the rate of emission reduction projected for Wisconsin sources compared to Michigan and Minnesota shows that Wisconsin is meeting its share of visibility improvement. Figures 6 and 7 show the total SO<sub>2</sub> and NO<sub>x</sub> emitted by sources in Michigan, Minnesota and Wisconsin. Of the five MWPO states, Michigan and Minnesota have higher contribution to Seney and Isle Royale compared to Wisconsin. The graphs show that Wisconsin emissions, using the "on the books" inventory, decrease at a similar or greater rate than Michigan and Minnesota emissions. Since Wisconsin sources are achieving emission reductions as rapidly as Michigan and Minnesota WDNR has determined its portion of contribution to RPG for the first 10 year period. Further, as previously identified Wisconsin emissions, particularly EGUs, are anticipated to be significantly lower than those shown in Figures 6 and 7.

However, inspection of Figures 6 and 7 finds that, while Wisconsin is predicting greater reductions in NO<sub>x</sub> than MI and MN, it falls short of the SO<sub>2</sub> reductions estimated in MN. WDNR should have conducted a valid four factor analysis of specific sources to determine what emissions controls are reasonable.

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<sup>11</sup> EPA-R06-OAR-2008-0727, 77 FR 14604